

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION**

NATIONAL INSTITUTE FOR STRATEGIC
TECHNOLOGY ACQUISITION (NISTAC),

Plaintiff

v.

NISSAN NORTH AMERICA, INC. et al.,

Defendants.

AND RELATED COUNTERCLAIMS

)
)
)
) Case No. 11-cv-11039-GCS-LJM

)
) **Hon. George Caram Steeh**
) **Magistrate Judge Laurie Michelson**
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) JURY DEMANDED
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DEFENDANTS' RESPONSIVE CLAIM CONSTRUCTION BRIEF

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Defendants Nissan North America, Inc., Nissan Motor Co., Ltd., Fuji Heavy Industries Ltd., Subaru of America, Inc., American Honda Motor Co., Inc., Toyota Motor Sales, U.S.A. Inc., and Toyota Motor Engineering & Manufacturing North America, Inc. (collectively, “Defendants”) submit this brief pursuant to ¶ G.5 of the Court’s May 23, 2011 Rule 26(f) Report and Discovery and Scheduling Order (D.I. 23) regarding the construction of certain terms¹ of U.S. Patent Nos. 5,239,955 (“the ’955 patent”) and 5,313,919 (“the ’919 patent”) (collectively, “the patents-in-suit”).²

I. INTRODUCTION

In their opening brief, Defendants cited the claim language and the specifications of the patents-in-suit extensively, adhering closely to the primary canon of claim construction that the intrinsic record is the best and most important source for the meaning of claim terms. *E.g.*, *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314–17 (Fed. Cir. 2005) (en banc). NISTAC paid lip service to this same principle, but ultimately relied predominantly—and often *exclusively*—on extrinsic materials to support its proposed claim constructions. This was telling, especially because it often contradicted the specifications of the patents-in-suit.

¹ To clarify the record, NISTAC claims that Defendants “informed NISTAC that they do not intend to seek construction of [certain] terms . . .” (D.I. 75 at 2.) Defendants actually notified NISTAC that “[i]n the spirit of compromise, and in an effort to further reduce the number of issues that the Court must decide, there are a number of terms . . . which Defendants will remove from the list of terms that need to be construed *at this time* . . .” (Ex. Q, Nov. 2, 2011 Hertko E-mail to Bruster et al. (emphasis added).) Defendants reserve all rights to ask for a construction at a later time, if necessary, but believe the terms addressed in their initial and responsive briefs appropriately narrow the issues presently before the Court.

² After initial claim construction briefs were filed by the parties, NISTAC dismissed its claims regarding U.S. Patent No. 5,482,637 with prejudice. (D.I. 78.) Therefore, Defendants will not respond to NISTAC’s arguments regarding the constructions of any terms of that patent.

Defendants’ proposed constructions—which are based on the intrinsic evidence—reflect the meaning a person of ordinary skill in the art would give to the language of the asserted claims. This Court should adopt Defendants’ proposed constructions.

II. ARGUMENT

A. “relieved” / “unrelieved,” “reservoirs of oil,” and “lands”

<u>Claim Terms</u>	<u>Defendants’ Proposed Constructions</u>	<u>NISTAC’s Proposed Constructions</u>
“relieved” / “unrelieved”	“cut away” / “not cut away”	No construction necessary.
“reservoirs of oil”	“relieved portions on the piston skirt that retain oil and are surrounded by lands”	No construction necessary.
“lands”	“unrelieved portions of the piston skirt surrounding the relieved portions”	No construction necessary. Alternative: The parts of the piston that are above and below the ring groove

NISTAC ignores the intrinsic evidence regarding these terms, and to the extent it provides any citations in support of its proposed constructions, NISTAC relies exclusively on extrinsic evidence. But as the Federal Circuit has explained, exclusive reliance on extrinsic evidence is improper—especially where, as here, the patentees used these terms to specifically describe the core features and functions of their alleged inventions. *See generally Phillips*, 415 F.3d at 1318–19 (describing reasons why extrinsic evidence is less reliable than intrinsic evidence); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1584 (Fed. Cir. 1996) (noting that extrinsic evidence may not be used to contradict the meaning of a term set forth in the intrinsic evidence). Indeed, the intrinsic evidence here stresses the specific lands/oil-reservoir-structures in the piston skirt *as* the alleged invention. The patents’ common specification even describes the arrangement of oil reservoirs “critical” to achieving the two objectives of the claimed piston: (i) oil retention and replenishment and (ii) a transferred coating from the piston skirt to the cylinder bore wall. (D.I. 74, Ex. A, ’955 patent at 5:13–19, 7:17–34). Defendants’

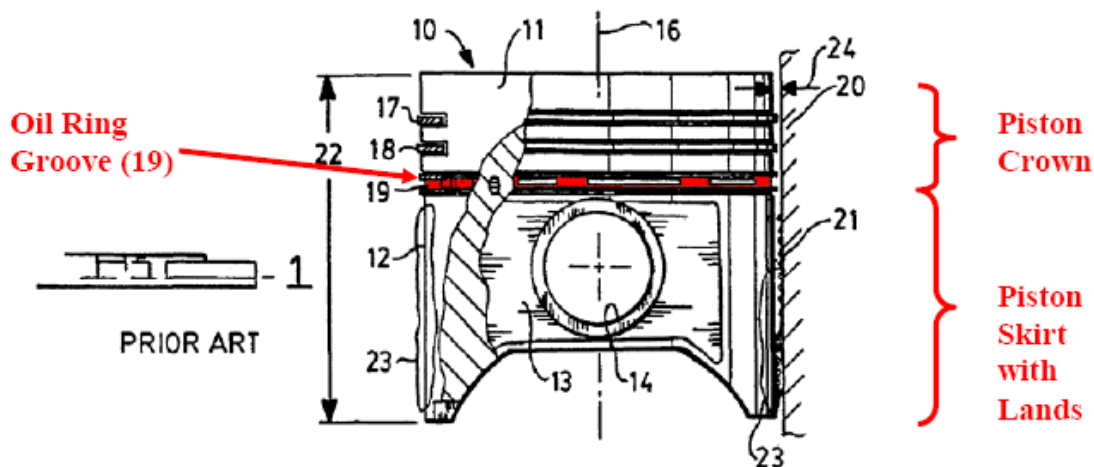
proposed constructions are supported by the intrinsic evidence and consistent with the patentees' description of their purported inventions.

As an initial matter, the term "lands" must be construed. NISTAC asserts that no construction is necessary. But "lands" is a technical term that has no commonly-understood or ordinary meaning to a lay juror. Furthermore, the parties have offered opposing constructions of this term and raised a genuine dispute regarding its construction. "When the parties raise an actual dispute regarding the proper scope of [] claims, the court, not the jury, must resolve that dispute. . . . When the parties present a fundamental dispute regarding the scope of a claim term, it is the court's duty to resolve it." *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360–62 (Fed. Cir. 2008). Construction is therefore not only appropriate but also required.

Recognizing this, NISTAC relies exclusively on a technical reference manual published 16 years after issuance of the patents-in-suit for the term's purported "ordinary and common understanding."³ But the patentees ascribed a specific meaning to "lands" in the specification that is instrumental to achieving the stated objectives of the patents. *See Vitronics*, 90 F.3d at 1582 ("The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication."). Notably, the meaning ascribed by the patentees is contrary to the definition NISTAC proposes. And here the specification fully details the special meaning of "lands," so the Court need not rely on extrinsic evidence. *Id.* ("[If] an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term . . . it is improper to rely on extrinsic evidence.").

³ The manual is not contemporaneous with the patents-in-suit, and therefore cannot reflect the meaning that would have been attributed to the term "lands" by persons of ordinary skill in the art at the time the patents-in-suit were issued. *See, e.g., Brookhill-Wilk I, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1299 (Fed. Cir. 2003) (declining to consider extrinsic evidence dated 7 and 10 years after the issuance of the patent-in-suit for purposes of claim construction).

NISTAC thus *wholly ignores* and even contradicts the intrinsic evidence.⁴ NISTAC proposes that “lands” are anything above or below the ring groove. This is wrong for at least two reasons. First, nothing in the patents-in-suit contemplates—let alone discloses—the presence of lands *above* the ring grooves. Indeed, the language of each of the claims of the patents-in-suit make clear that the crown and skirt wall are mutually exclusive portions of the piston, and that the lands are located in the skirt walls. (See, e.g., D.I. 74, Ex. A, ’955 patent, at claim 10 (“providing a cylindrical piston body with a crown, side walls depending from said crown . . . [and] undercutting the exterior of said *side walls* to define radially exposed lands for sliding along said bore wall”) (emphasis added).) Similarly, the patents’ figures label some (but not all) areas *below the ring grooves on the skirt* as lands, but no such area above the ring groove. (*Id.* at 4:13–31, 5:13–19; *id.* Figs. 4–6 (labeled 35 and 36).)⁵ The area above the ring groove is identified as a different element of the piston—the crown.



⁴ If the extrinsic evidence contradicts the intrinsic evidence—as it does here—the intrinsic evidence trumps. *Phillips*, 415 F.3d at 1317–19; *Vitronics*, 90 F.3d at 1584.

⁵ The ’919 patent is a divisional of the ’955 patent. (D.I. 74, Ex. B, ’919 patent at [62] (related U.S. application data).) As such, it shares a common specification and figures with the ’955 patent. Unless specifically noted otherwise, Defendants will cite to the ’955 patent’s specification for the identical propositions present in both specifications.

(*Id.* Fig. 1) (annotations added).) The specification consistently refers to—and all of the figures show—the “lands” as being located on the piston skirt. (*E.g.*, *id.* at 4:17–23; 5:27–30; *id.* claims 4, 12.) Thus, the definition of “lands” in the extrinsic evidence (from 2010) cited by NISTAC—which is directed to “ring lands”—cannot be referring to the same “lands” as the patents-in-suit. (D.I. 75 at 19; *id.* Ex. O ¶ 3.58.)

Second, the patents do not use “lands” to refer to the *entire* area below the ring groove. Rather, only very specific portions of the area below the ring groove constitute the “lands”—the unrelieved portions of the skirt that are defined by cutting away portions of the skirt wall to create “reservoirs.” (D.I. 74, Ex. A, ’955 patent, at 4:17–19; *id.* claims 9, 18.) In fact, the patents stress the importance of minimizing the area that the lands occupy on the piston skirt (*id.* at 7:63–65) to achieve the objectives of oil replenishment (by increasing the size of the relieved areas or “reservoirs”) and a transferred coating (by increasing the force at the areas where the “lands” contact the bore wall). Minimization makes sense only if the unrelieved portions of the skirt wall—and not the entire area of the piston below the ring groove—constitute the “lands.” The patents are thus devoid of any support for—and in fact contradict—NISTAC’s proposed construction. *See Vitronics*, 90 F.3d at 1584.

NISTAC likewise ignores the intrinsic evidence that informs the construction of the terms “relieved” and “unrelieved.” These terms have specific meanings in the patents and should be construed. In fact, the patents specifically identify various processes for creating the relieved areas, each of which requires the removal or cutting away of material from the skirt wall. (D.I. 74, Ex. A, ’955 patent at 1:59–64, 2:26–28, 4:14–17, 5:30–33, 5:46–48; *id.* claim 10.) This removal of material from the skirt wall creates the “relieved” areas that define, and are surrounded by, the “unrelieved” areas (i.e., the lands). (*See, e.g., id.* Figs. 5 and 6.)

Finally, NISTAC ignores the intrinsic evidence for the term “reservoirs of oil.” NISTAC’s proposal that no construction is necessary would impermissibly disregard the very specific arrangement and purpose of the reservoirs set forth in the patents. (*See id.* at 5:14–19 (“The benefit of these alternative [arrangements of lands] is to enhance the size and location of oil reservoirs during transient mode operation of the engine, such reservoirs being *critical* to the retention of the oil film to promote mixed and hydrodynamic lubrication.”) (emphasis added).) The patents describe the reservoirs of oil as the relieved areas of the piston skirt that retain oil and are surrounded by the lands. (*Id.* at 2:68–3:2; *id.* claim 18.) Defendants provide a construction that reflects and explains the context of the claimed structure and the clear patent teachings for this “critical” structure (*Id.* at 5:13–19). And NISTAC’s failure to cite any intrinsic evidence whatsoever is telling.

B. “solid film lubricant coating,” “solid lubricants,” and “solid film lubricant crystals”

<u>Claim Terms</u>	<u>Defendants’ Proposed Constructions⁶</u>	<u>NISTAC’s Proposed Constructions</u>
“solid lubricants”	<p>“two or more solid lubricants”</p> <p>“graphite, molybdenum disulfide, and optionally boron nitride” (<i>American Honda Motor Co., Inc.</i>)</p>	<p>No construction necessary</p> <p>Alternative: “lubricants in solid film form with at least two crystals chosen from the group of graphite, boron nitride (BN), and molybdenum disulfide (MoS₂), regardless of the existence of other crystals with lubricating properties”</p>

⁶ As indicated below, all of the Defendants with the exception of Defendant American Honda Motor Co., Inc. (“Honda”) agree in Defendants’ proposed constructions. Defendant Honda’s proposed construction is indicated in the chart and discussed below.

<u>Claim Terms</u>	<u>Defendants' Proposed Constructions⁶</u>	<u>NISTAC's Proposed Constructions</u>
"solid film lubricant coating"	Plain and ordinary meaning	"A coating that has lubricating properties and in solid film form with at least two crystals chosen from the group of graphite, boron nitride (BN), and molybdenum disulfide (MoS ₂), regardless of the existence of other crystals with lubricating properties"
"solid film lubricant crystals"	"crystals of two or more solid lubricants" "crystals of graphite, molybdenum disulfide, and optionally boron nitride" (<i>American Honda Motor Co., Inc.</i>)	"Crystals with lubricating properties and in solid film form with at least two crystals chosen from the group of graphite, boron nitride (BN), and molybdenum disulfide (MoS ₂), regardless of the existence of other crystals with lubricating properties"

1. Argument of All Defendants Except Honda

NISTAC proposes to replace these simple claim phrases with constructions significantly longer than the phrases themselves. Yet despite using many more words, NISTAC's proposed constructions do nothing to clarify the meanings of these claim phrases. In fact, NISTAC's proposals actually introduce uncertainty. For example, instead of clarifying the meaning of "solid film lubricant coating," NISTAC would introduce new, undefined terms like "lubricating properties" and "solid film form" without any indication as to what these terms mean. The resulting construction would only obscure, not elucidate, the meaning of these phrases.

NISTAC's proposed constructions for all three of these terms is contrary to the intrinsic evidence. As noted in Defendants' initial brief, NISTAC's proposals would encompass two crystals of only one of graphite, molybdenum disulfide, or boron nitride. (D.I. 74 at 11–13.) The patents-in-suit, however, require the presence of *multiple* solid film lubricants.⁷

⁷ Notably, even where NISTAC cites to the specification in its brief, it adds the word "or" when describing a statement in the specification that *does not* list the three solid film lubricants in the alternative. (See, e.g., D.I. 75 at 26, 28–29.)

NISTAC also attempts to import other limitations into the claims through its unsupported constructions. This is improper. *See, e.g., Varco, L.P. v. Pason Sys. USA Corp.*, 436 F.3d 1368, 1373 (Fed. Cir. 2006). For instance, with respect to “solid film lubricant coating,” NISTAC’s proposal that the claim phrase requires choosing among graphite, boron nitride, and molybdenum disulfide is incorrect; it does not, in fact, reflect “the inventors’ intended scope of that term.” (*E.g.*, D.I. 75 at 26.) Every claim of the patents-in-suit requires a “solid film lubricant coating,” but **only** independent claim 1 of the ’955 patent and independent claims 1 and 3 of the ’919 patent require that the “solid film lubricant coating” consist exclusively of graphite, molybdenum disulfide, and boron nitride. The other claims are silent as to the **types** of solid lubricants that may be used. In short, the applicants knew how to claim a “solid film lubricant coating” that consists of graphite, molybdenum disulfide, and boron nitride, because that limitation appears in some of the claims of the patents-in-suit. It does not, however, appear in all of the claims. And NISTAC’s proposed construction improperly seeks to import that limitation into **every claim** of the patents-in-suit. NISTAC fails to identify any disclaimer or teaching that would support the importation of such additional limitations into the claims. The same problem exists with respect to NISTAC’s proposed alternative construction of “solid lubricants.” *See, e.g., Comark Commc’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998); *Tandon Corp. v. U.S. Int’l Trade Comm’n*, 831 F.2d 1017, 1023 (Fed. Cir. 1987).

With respect to “solid film lubricant crystals,” NISTAC similarly attempts to import the limitation that they be “chosen from the group of graphite, boron nitride (BN), and molybdenum disulfide (MoS₂).” (D.I. 75 at 27.) NISTAC cites no intrinsic evidence for this requirement.⁸ In

⁸ Indeed, the only intrinsic evidence NISTAC cites regarding “solid film lubricant **crystals**” is the same evidence it cites regarding “solid film lubricant **coating**.” (*Compare* D.I. 75 at 26 (citing

fact, the phrase “solid film lubricant crystals” appears only once in the specification of the patents-in-suit outside of the claims, and it never limits them to graphite, molybdenum disulfide, and boron nitride. (D.I. 74, Ex. A, ’955 patent at 2:36–38.) Nor do the claims limit “solid film lubricant crystals” to crystals of graphite, molybdenum disulfide, and boron nitride. The phrase appears only in independent claim 10 of the ’955 patent and independent claims 2 and 9 of the ’919 patent. (*Id.* claim 10; *id.*, Ex. B, ’919 patent claims 2, 9.). But these claims do not even refer to graphite, molybdenum disulfide, or boron nitride. There is simply no support in the specification of the patents-in-suit for NISTAC’s proposed construction or the limitations NISTAC attempts to import into the claims.

NISTAC compounds the proposed error by asking the Court to import the limitation that the solid film lubricants be “chosen from the group of graphite, boron nitride (BN), and molybdenum disulfide (MoS₂)” into *all three* claim phrases. As described in Defendants’ Initial Claim Construction Brief, *every* claim of the patents-in-suit requires a “solid film lubricant coating,” but *only some* of the claims require any type of “crystals.” (*See* D.I. 74, Ex. A, ’955 patent claim 10; *id.*, Ex. B, ’919 patent claims 2, 9.) These phrases, used differently within the claims of the patents-in-suit, must mean different things. *See, e.g., Comark Commc’ns*, 156 F.3d at 1187; *Tandon Corp.*, 831 F.2d at 1023.

In contrast to NISTAC’s convoluted proposed constructions, Defendants’ proposed constructions are consistent with the intrinsic evidence and the meaning a person of ordinary skill in the art would ascribe to the claim phrases. The phrase “solid film lubricant coating” does not require a construction because it carries its plain and ordinary meaning that it is a film coating comprised of solid lubricants. (*E.g.*, D.I. 74, Ex. A, ’955 patent at 2:52–54.) The phrase ’955 patent at 2:11–14 and 4:32–37), *with id.* at 27–28 (same).) Neither of these two passages reference any sort of “solid film lubricant *crystals*.”

“solid lubricants” is plural, indicating “two or more solid lubricants.” *See, e.g., Legget & Platt, Inc. v. Hickory Springs Mfg. Co.*, 258 F.3d 1353, 1357 (Fed. Cir. 2002); *Dayco Prods., Inc. v. Total Containment, Inc.*, 258 F.3d 1317, 1327–28 (Fed. Cir. 2001); *York Prods., Inc. v. Cent. Tractor Farm & Family Ctr.*, 99 F.3d 1568, 1575 (Fed. Cir. 1996). The specification also supports the Defendants’ proposed construction that “solid lubricants” means “two or more solid lubricants.” (D.I. 74, Ex. A, ’955 patent at 4:36–41, 4:61–64; *id.* claim 2.) “Solid film lubricant crystals” is plural, indicating that it requires multiple crystals. And because “solid lubricants” properly means “two or more solid lubricants,” “solid film lubricant crystals” is properly construed as “crystals of two or more solid lubricants.”

2. Argument of Defendant Honda

NISTAC argues that Honda’s proposed construction of “solid lubricants” and “solid film lubricant crystals” is “too restrictive” because it excludes combinations “such as a graphite + boron nitride combination or a molybdenum disulfide + boron nitride combination.” (*See* D.I. 75 at 28–29.) NISTAC, however, fails to cite to any intrinsic evidence to suggest that the claims cover these hypothetical combinations, or any other combinations of solid lubricants.

In contrast to NISTAC’s proposed construction, which is not supported by any intrinsic evidence, the construction proposed by Honda is fully supported by the specification of the patents-in-suit. The specification defines the “invention” as a new piston construction with a solid film lubricant comprising graphite and molybdenum disulfide only. The first sentence of the section titled, “Summary of the Invention,” reads:

In a first aspect of this invention, a new piston construction is provided with ***a coating of solid film lubricant (SFL) comprising graphite and molybdenum disulfide*** in a resin

(D.I. 74, Ex. A, ’955 patent at 1:55–58 (emphasis added).) Boron nitride is then described as an optional feature of the invention. (*Id.* at 1:58–68.) Every other embodiment in the specification

includes all three lubricants: graphite, molybdenum disulfide, and boron nitride. (*See id.* at [57] (abstract) (graphite, MoS₂, and BN), 4:32–54 (graphite, MoS₂, and BN).) To be clear, the specification of the patents-in-suit does not mention any “solid lubricants” other than graphite, molybdenum disulfide, and boron nitride. Because the claims must be read in light of the specification, the terms “solid lubricants” and “solid film lubricant crystals” should be construed to include only graphite, molybdenum, and (optionally) boron nitride in accordance with the description provided.

NISTAC’s proposed constructions for “solid lubricants” and “solid lubricant crystals” cannot be correct for at least two reasons. **First**, under NISTAC’s proposed constructions, the alleged invention need only have two individual crystals of any one solid lubricant (e.g., graphite). Such an attempt to broaden the claims beyond any reasonable connection to the specification is contrary to established claim construction principles and should be rejected. **Second**, NISTAC’s construction ignores the stated purpose of using boron nitride in the first place—that is, to increase the operating temperature of a coating with molybdenum disulfide, which breaks down at high temperatures. (*See id.* at 4:45–53 (“molybdenum disulfide alone breaks down to a powder at about 580° F., but in the presence of BN does not break down to 700° F. . . .”).) Unlike molybdenum, graphite remains stable at high temperatures. Therefore, no need exists to combine graphite with boron nitride. Not surprisingly, the specification does not mention any coatings comprising graphite and BN alone—a combination that would be permitted under NISTAC’s faulty construction.

C. “at least at regions of piston slap”

<u>Defendants’ Proposed Construction</u>	<u>NISTAC’s Proposed Construction</u>
“at each area where the piston skirt contacts the cylinder bore wall”	No construction necessary.

The parties agree that “piston slap” is the contact of the piston skirt against the bore wall. (*Compare* D.I. 74 at 15, *with* D.I. 75 at 18 (“[P]iston slap is the impact of the skirt against the bore wall”).) However, NISTAC appears content to allow the jury to determine the scope of the “regions” of this piston slap. Needless to say, this is improper. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996) (“[C]onstruction of a patent, including terms of art within its claim, is exclusively within the province of the court.”). The term requires construction. *O2 Micro*, 521 F.3d at 1360–62.

Defendants propose to clarify that the “regions” of piston slap comprise *each area* where the piston skirt contacts the bore wall, rather than some undefined and unknown subset of these regions. The claim language and the stated goal of the patents of reducing friction support this construction. (*See* D.I. 74 at 15–16.)

D. “asperities”

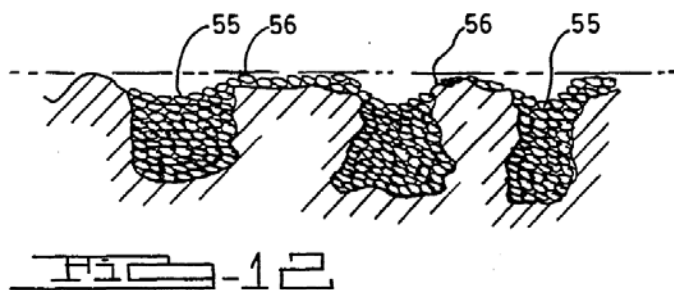
<u>Defendants’ Proposed Construction</u>	<u>NISTAC’s Proposed Construction</u>
“cavities formed by surface roughening”	No construction necessary. Alternative: Small irregularities, imperfections or roughness

NISTAC’s argument that “asperities” requires no construction because the patents-in-suit use the term in its ordinary manner fails for three reasons. **First**, “asperities” is a term of art that must be construed to assist the jury in deciding the issues in this case, especially because the patentees have ascribed specific qualities to the asperities beyond mere inherent surface roughness.

Second, NISTAC’s construction fails to consider that the patents consistently treat “asperities” as cavities. Defendants’ proposed construction explicitly recognizes this important feature. (*See* D.I. 74 at 17.) Figures 10 and 11 are instructive:



(*Id.* Figs. 10, 11.) By way of contrast, Figure 12 shows the surface roughness formed by “pockets” 55:



(*Id.* Fig. 12; *see also id.* at 3:21–25 (“FIGS. 10–12 are high [sic] enlarged microsectional views of the piston land surface and coating including asperities thereof, such views showing, in sequence, the change in the coating as a result of deposition, polishing, and pocket formation.”).) The specification teaches that these “pockets” are formed *at the asperity mouths*. (*Id.* at 5:43–45.) NISTAC’s construction essentially tries to re-label the pockets as asperities. But such a re-labeling is contrary to the intrinsic evidence, which clearly shows that the surface-roughness-forming pockets are separate and distinct from the asperities. The term “asperities,” as used in the patents-in-suit, must therefore refer to cavities, as distinguished from the general surface roughness that results from the formation of pockets at the mouths of those cavities.

Third, NISTAC’s construction would improperly read the “asperities” limitation out of the claims entirely. (*See* D.I. 74 at 18.) NISTAC’s proposed extrinsic evidence states that “small irregularities, imperfections, or roughness” exist in *every surface*. (*See* D.I. 75, Ex. L at 24 (“Even in case [sic] of highly polished surfaces, the surface topology is relatively coarse; the

asperity height tends to be several orders of magnitude greater than the atomic/molecular spacing.”.) NISTAC is thus tacitly urging the Court to adopt a construction that would be met by any and every possible surface. But the asserted claims must require more than naturally occurring, inherent surface roughness in order for the “asperities” limitation to have any meaning. And, indeed, the claims do require more—the patents in fact specify that the cavities are formed by a surface-roughening process, and that they have a definite “depth” as further discussed in the next section. (*See* D.I. 74 at 17–18).

The patents thus refer to “asperities” in a specific way—namely, cavities intentionally formed by a surface roughening process—not the ordinary imperfections of any surface on Earth. The “ordinary and common meaning in the art” of “asperities” advocated by NISTAC (D.I. 75 at 18) simply cannot apply here, as it would make no sense.

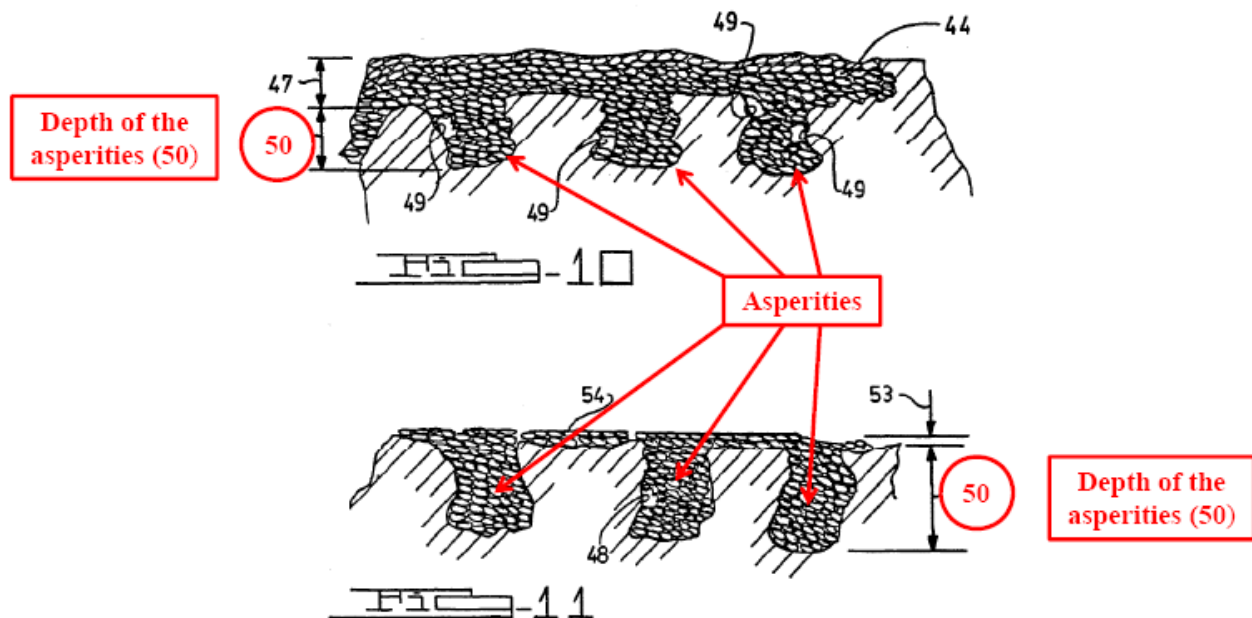
E. “depth of the asperities”

Defendants’ Proposed Construction	NISTAC’s Proposed Construction
“average of the distances from the surface of the lands to the bottom of each asperity”	No construction necessary. Plain and ordinary meaning.

Contrary to NISTAC’s assertion, the concept of a singular depth for a vast population of asperities present on a piston surface is not “straightforward.” (D.I. 75 at 19.) NISTAC fails to explain how to calculate a *single depth* for a *set of asperities*, when each asperity has a unique depth. Defendants’ construction, on the other hand, addresses this critical issue directly and proposes the most reasonable solution—the numerical average of the various asperity depths. (*See* D.I. 74 at 19.)

Moreover, NISTAC neglects the fact that the claimed “asperities” are empty spaces, without top surfaces from which to measure their depths. Under NISTAC’s approach there is no reference point for measuring the depth. Defendants’ proposed construction solves this problem

by identifying the surface of the lands adjacent to an asperity as the upper surface. This is precisely the approach specified by the patents:



(See D.I. 74, Ex. A, '955 patent Figs. 10–11 (delineating the surface of the lands as the upper boundary for the depth of the asperities 50).) Thus, rather than “import[ing] additional limitations” into the claim term (D.I. 75 at 19), Defendants’ construction facilitates measurement of “the depth of the asperities” as the “average of the distances from the surface of the lands to the bottom of each asperity.”

F. “microasperities”

<u>Defendants’ Proposed Construction</u>	<u>NISTAC’s Proposed Construction</u>
“cavities significantly smaller than the asperities in the lands”	No construction necessary. Alternative: Microscopic irregularities, imperfections or roughness

NISTAC simply adds the word “microscopic” to its flawed construction of asperities in construing “microasperities.” NISTAC provides no support for its construction, instead relying on the same extrinsic evidence it identified for its construction of “asperities.” (*Compare* D.I. 75 at 17–18, *with id.* at 21.) But “microasperities” cannot simply be microscopic asperities because

“asperities” are themselves already microscopic. (*See* D.I. 74 at 21 n.6.) NISTAC’s proposed construction therefore erroneously equates two different claim terms. *E.g.*, *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 93 F.3d 1572, 1579 (Fed. Cir. 1996) (“If the terms ‘pusher assembly’ and ‘pusher bar’ described a single element, one would expect the claim to consistently refer to this element as *either* a ‘pusher bar’ or a ‘pusher assembly,’ but not both, especially not within the same clause.”). The “micro-” modifier actually denotes “significantly smaller” (D.I. 74 at 21), and this meaning applies here. “Microasperities” should therefore be construed as “cavities significantly smaller than the asperities in the lands.”

G. “predetermined pattern”

<u>Defendants’ Proposed Construction</u>	<u>NISTAC’s Proposed Construction</u>
“an arrangement formed by a process and determined in advance”	No construction necessary.

NISTAC’s contention that always-present, natural surface roughness constitutes a “predetermined pattern of asperities” highlights the ambiguity surrounding the phrase “predetermined pattern.” The Court should therefore construe this term. *O2 Micro*, 521 F.3d at 1360–62. The phrase “predetermined pattern” does not find a definition in the patents-in-suit, and, consequently, examination of the extrinsic evidence to discern its plain and ordinary meaning is appropriate. *See Phillips*, 415 F.3d at 1314. The extrinsic evidence clarifies that an arrangement can only be a “predetermined pattern” if it is determined in advance of its formation. Moreover, that arrangement must be formed by some process. (*See* D.I. 74 at 22.) Thus, the Court should define “predetermined pattern” as “an arrangement formed by a process and determined in advance.”

H. “shallow pockets”

<u>Defendants’ Proposed Construction</u>	<u>NISTAC’s Proposed Construction</u>
“dimples in the coating”	No construction necessary.

Despite contending that the term “shallow pockets” should be given its “common and ordinary meaning,” NISTAC fails to cite any evidence to suggest what that common and ordinary meaning was at the time of the alleged invention of the patents-in-suit. (See D.I. 75 at 25–26.) Instead, NISTAC relies on extrinsic evidence that was published more than 17 years *after* the issuance of the patents-in-suit. Such post-issuance evidence should not be considered during claim construction to determine the meaning of a disputed term in the patent claims at the time of the invention. See *Brookhill-Wilk*, 334 F.3d at 1299 (declining to consider extrinsic evidence dated 7 and 10 years after the alleged invention of the patent-in-suit for purposes of claim construction).

In any event, the extrinsic evidence cited by NISTAC is not relevant to the meaning of the term “shallow pockets.” The evidence cited by NISTAC relates to the term “*Valve Pockets*,” which refers to “a machined or case recess *on the piston crown* to provide clearance to the open intake or exhaust valve.” (D.I. 75, Ex. O ¶ 3.80 (emphasis added).) By contrast, the “shallow pockets” described in the patents-in-suit have no relation to intake or exhaust valves; they are present in the *coating* located on the *piston skirt*.

Importantly, NISTAC concedes that “‘shallow pockets’ *can* consist of dimples in the coating”. (D.I. 75 at 25.) But NISTAC overlooks the teaching of the specification that a *dimpled* coating is a key aspect of the invention. (See, e.g., D.I. 74, Ex. A, ’955 patent at 4:3–9 (“This invention coats the piston skirt with a novel solid film lubricant . . . The solid film lubricant is locked in place on such surface, polished, *and dimpled* to create pockets for oil film replenishment” (emphasis added)); *id.* at 7:22–25 (“Piston making herein is enhanced in novelty by asperity definition containing SFL, *which SFL is dimpled*, such as by brushing, to provide oil pockets to replenish the attracted oil film” (emphasis added)).)

NISTAC is wrong to suggest that the use of the word “dimple” in claim 15 of the ’955 patent is “a clear sign that the inventors saw a distinction between a ‘shallow pocket’ and a pocket that is dimpled.” (See D.I. 75 at 26.) Dependent claim 15 adds the limitation that the “shallow pockets” of claim 10 be formed by brushing. As noted in the preceding paragraph, “dimpling” is an effect of “brushing.” Notably, however, the patents-in-suit describe brushing as only one means among potentially many that allows for dimpling to occur. (D.I. 74, Ex. A, ’955 patent at 7:23–24 (“SFL is dimpled, *such as by brushing* . . .” (emphasis added)).) The patents-in-suit are clear—“shallow pockets” amount to “dimples in the coating,” regardless of how they are formed.

I. The Claim Terms “low-friction” and “providing a low friction piston” Render the ’955 and ’919 Patent Claims Indefinite.

NISTAC baldly asserts that the terms “low-friction” and “providing a low-friction piston” are definite and have “well-understood meanings.” (See D.I. 75 at 20.) Notably, however, NISTAC does not suggest what those meanings might be. A claim term is indefinite where the evidence shows that “a skilled artisan could not discern the boundaries of the claim based on the claim language, the specification, and the prosecution history, as well as her knowledge of the relevant art area.” *Halliburton Energy Servs., Inc. v. M-I, LLC*, 514 F.3d 1244, 1249–50 (Fed. Cir. 2008). Here, the specification of the patents-in-suit provides no guidance regarding the point at which a standard piston becomes a “low-friction” piston. Is it when the coefficient of friction is below 0.2? 0.1? 0.05? Without any guidance from the intrinsic evidence, a person of ordinary skill in the art cannot discern the boundary between “moderate” and “low” friction. See, e.g., *Worldwide Innovations & Techs., Inc. v. Microtek Med., Inc.*, No. 06-285, 2007 U.S. Dist. LEXIS 69076, at *11–12 (N.D. Miss. Sept. 17, 2007) (finding claim

indefinite where specification inadequately specified how to determine the claimed coefficient of friction).

NISTAC relies primarily on extrinsic evidence to support its position that the terms “low-friction” and “providing a low-friction piston” are definite. But NISTAC does not explain how—if at all—these references relate to the disclosure of the patents-in-suit. Nor does NISTAC explain how the extrinsic evidence would assist a person of ordinary skill to ascertain the boundaries of the asserted claims.

Further, NISTAC’s extrinsic evidence itself is flawed for two reasons. First, NISTAC improperly relies on information relating to the accused products. (D.I. 75 at 20 (citing to Ex. H detailing accused coating Sandstrom E720, and Ex. I detailing accused coating Dow Corning Molykote 7409); *NeoMagic Corp. v. Trident Microsystems, Inc.*, 287 F.3d 1062, 1074 (Fed. Cir. 2002) (“It is well settled that claims may not be construed by reference to the accused device.”)). Second, much of NISTAC’s extrinsic evidence post-dates the issuance of the patents-in-suit by nearly 5 years. (*E.g.*, D.I. 75, Exs. L, M, N.) The Court should not consider this evidence when construing the claims. *See Brookhill-Wilk*, 334 F.3d at 1299.

Because they are not capable of construction, and because NISTAC conspicuously fails to offer any constructions, these phrases render the claims of the patents-in-suit indefinite. *See, e.g., Honeywell Int’l, Inc. v. Int’l Trade Comm’n*, 341 F.3d 1244, 1249 (Fed. Cir. 2008).

III. CONCLUSION

For the foregoing reasons, Defendants respectfully request that this Court adopt Defendants’ proposed constructions as set forth above.

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Respectfully submitted,

/s/ Paul T. O'Neill

Lawrence C. Mann (P32223)

Paul T. O'Neill (P57293)

BOWMAN AND BROOKE LLP

50 West Big Beaver Road

Suite 600

Troy, MI 48084

Tel.: (248) 687-5300

Fax: (248) 743-0422

Larry.Mann@bowmanandbrooke.com

Paul.O'Neill@bowmanandbrooke.com

<p>NISSAN NORTH AMERICA, INC. and NISSAN MOTOR CO., LTD.</p> <p>Reginald J. Hill Peter J. Brennan JENNER & BLOCK LLP 353 N. Clark Street Chicago, IL 60654-3456 Tel.: (312) 222-9350 Fax: (312) 527-0484 rhill@jenner.com pbrennan@jenner.com</p>	<p>AMERICAN HONDA MOTOR CO., INC.</p> <p>Steven M. Bauer Kimberly A. Mottley Colin G. Cabral PROSKAUER ROSE LLP One International Place Boston, MA 02110 Tel.: (617) 526-9600 Fax: (617) 526-9899 sbauer@proskauer.com kmottley@proskauer.com ccabral@proskauer.com</p>
<p>FUJI HEAVY INDUSTRIES LTD. and SUBARU OF AMERICA, INC.</p> <p>Paul R. Steadman, P.C. Craig D. Leavell Matthew J. Hertko KIRKLAND & ELLIS LLP 300 North LaSalle Chicago, IL 60654 Tel.: (312) 862-2000 Fax: (312) 862-2200 paul.steadman@kirkland.com craig.leavell@kirkland.com matthew.hertko@kirkland.com</p>	<p>TOYOTA MOTOR SALES, U.S.A. INC.; and TOYOTA MOTOR ENGINEERING & MANUFACTURING NORTH AMERICA, INC.</p> <p>William H. Mandir John F. Rabena Yoshinari Kishimoto Keiko K. Takagi SUGHRUE MION, PLLC 2100 Pennsylvania Ave. NW Washington, DC 20037 Tel.: (202) 293-7060 Fax: (202) 293-7860 wmandir@sughrue.com jrabena@sughrue.com ykishimoto@sughrue.com ktakagi@sughrue.com</p>

CERTIFICATE OF SERVICE

I hereby certify that a copy of DEFENDANTS' RESPONSIVE CLAIM CONSTRUCTION BRIEF was filed electronically and thus served on all counsel of record on this 22nd day of November, 2011.

/s/ Paul T. O'Neill

Paul T. O'Neill